perspective view of running multiple OS in single mobile device

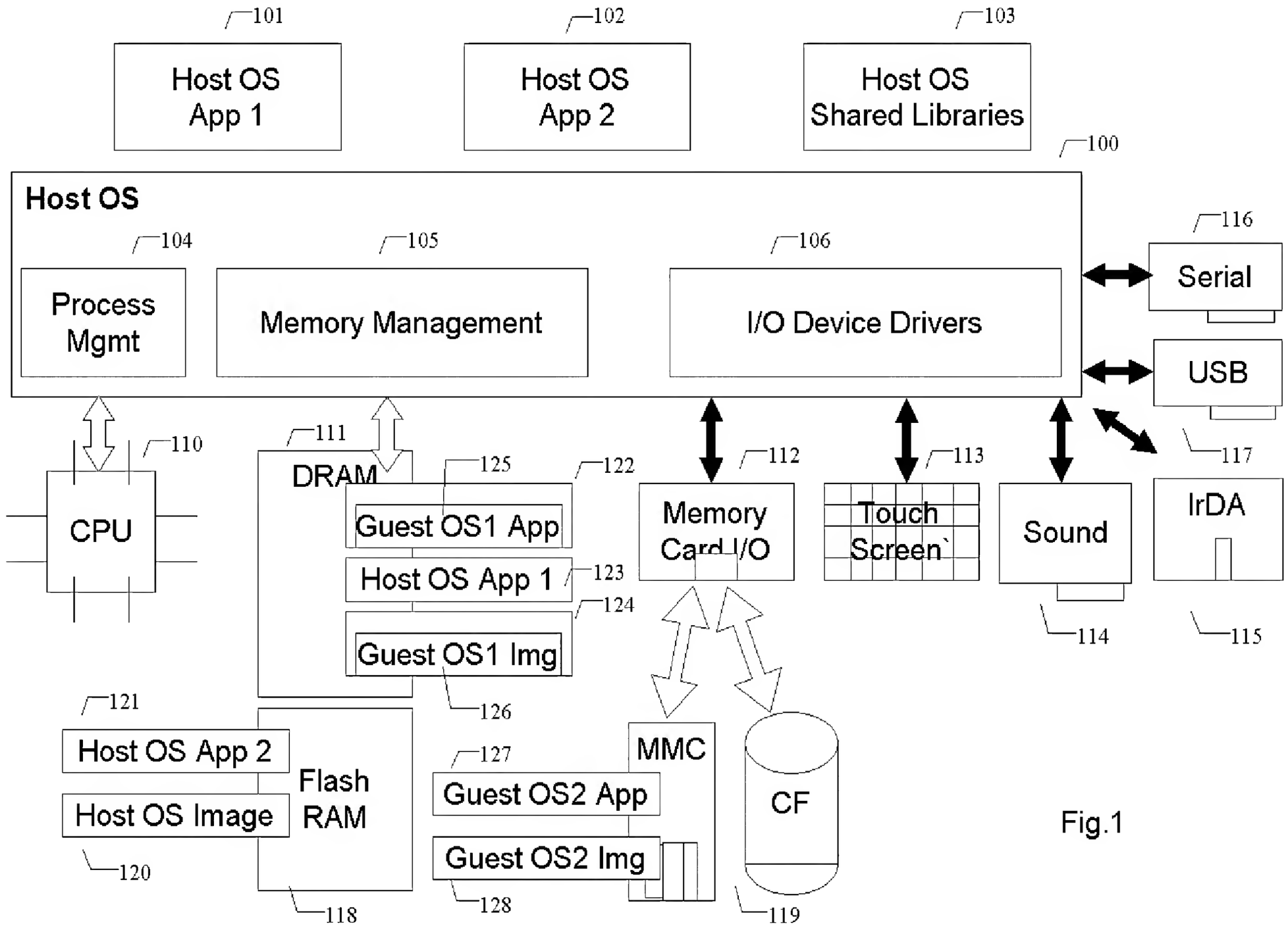

Fig.1

two ways to wrap guest code for in-place execution

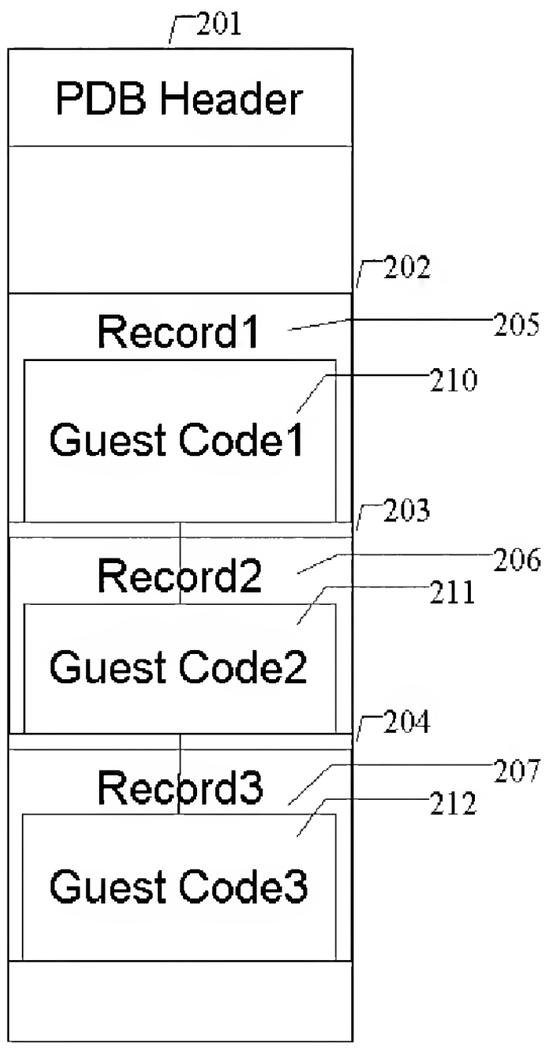

Fig.2a

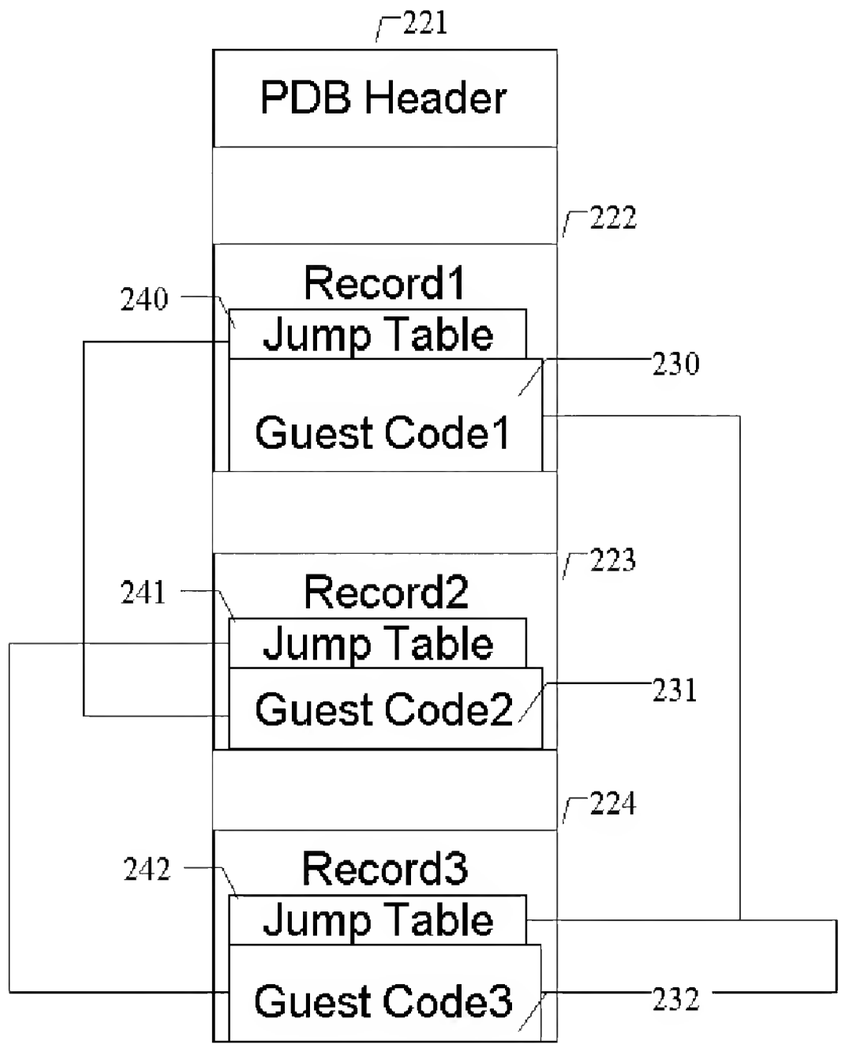

Fig.2b

Fig.2

General procedure to run guest OS from original host OS

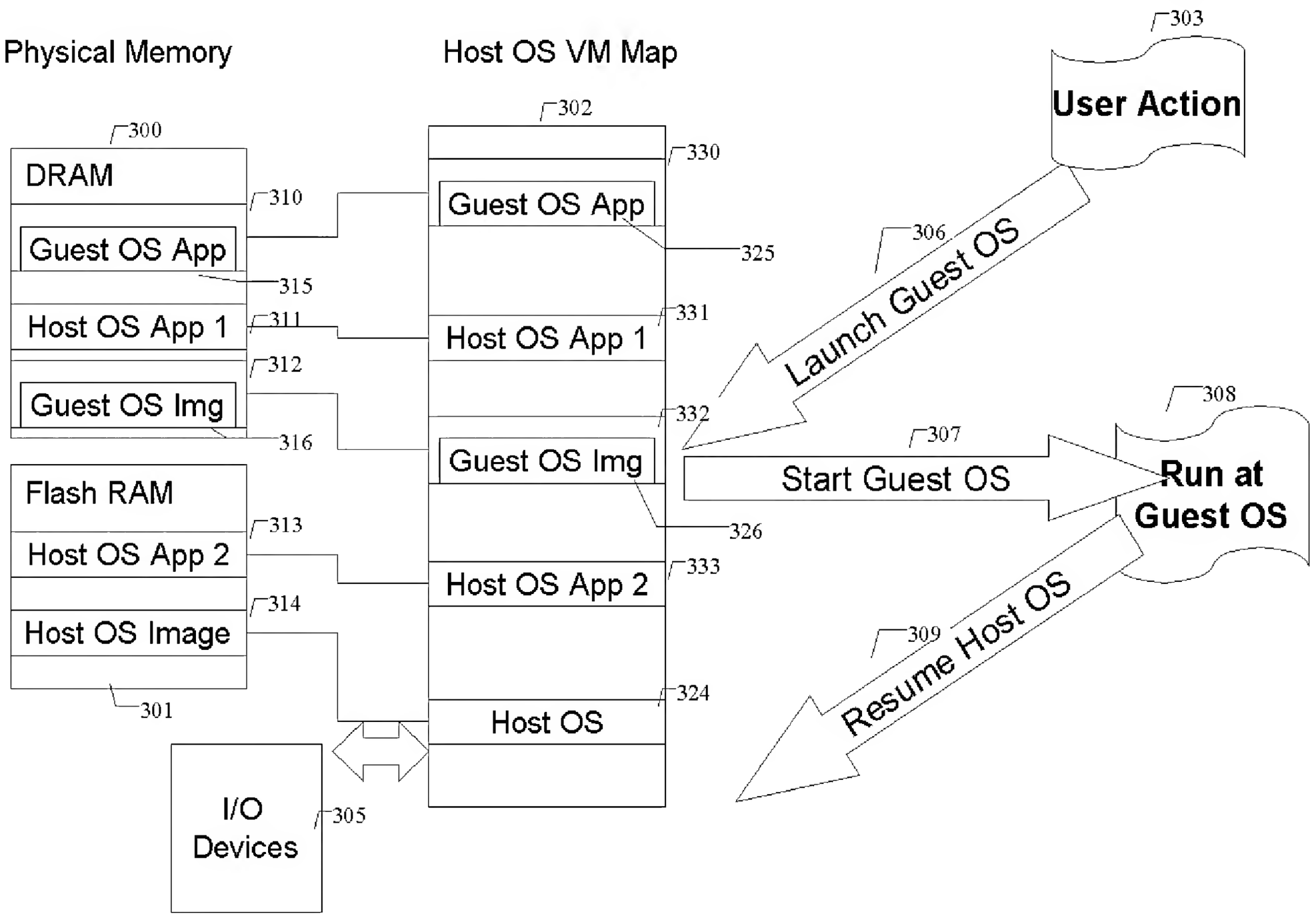

Fig.3

Change memory protection bits to preserve data of original OS

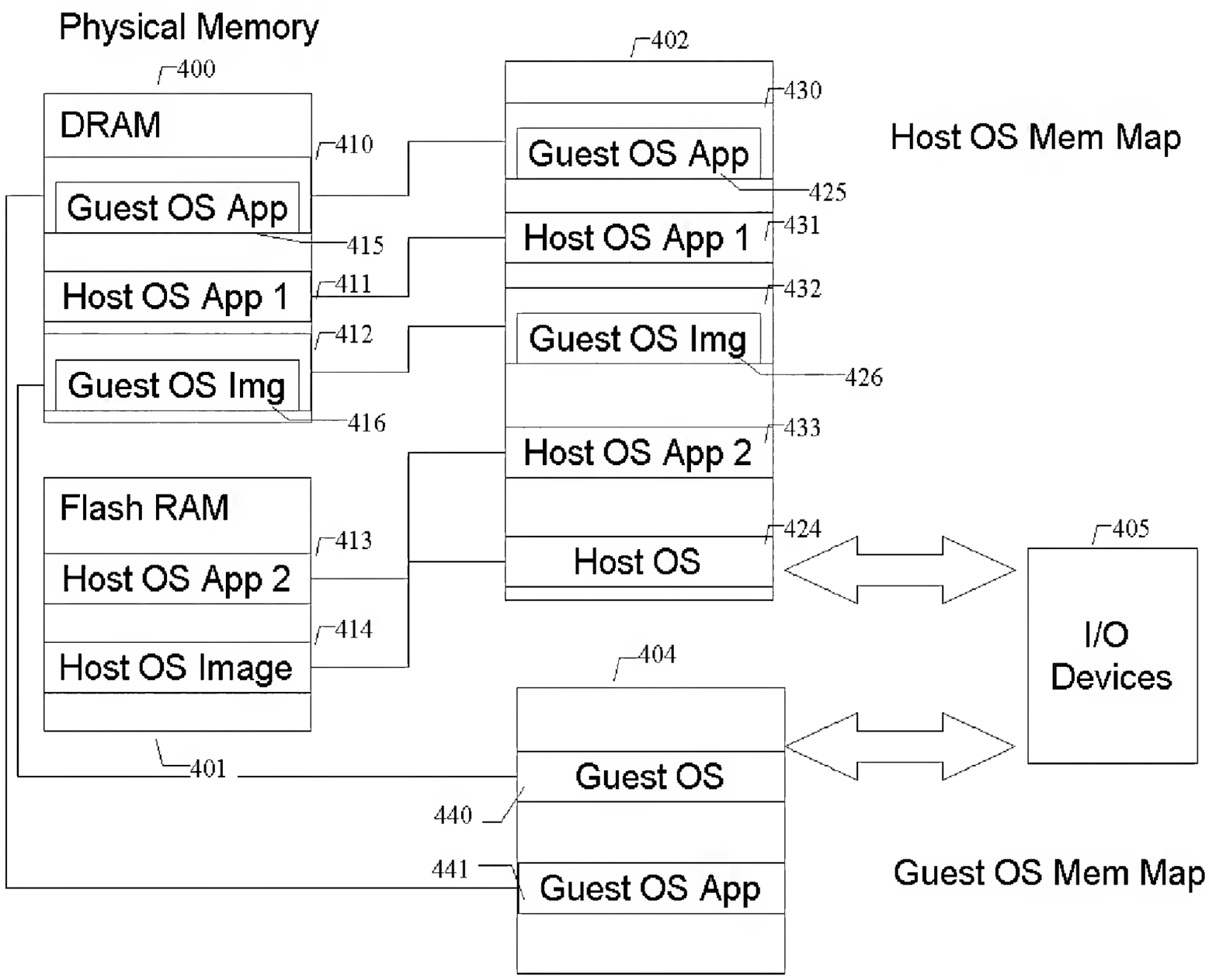

Fig. 4

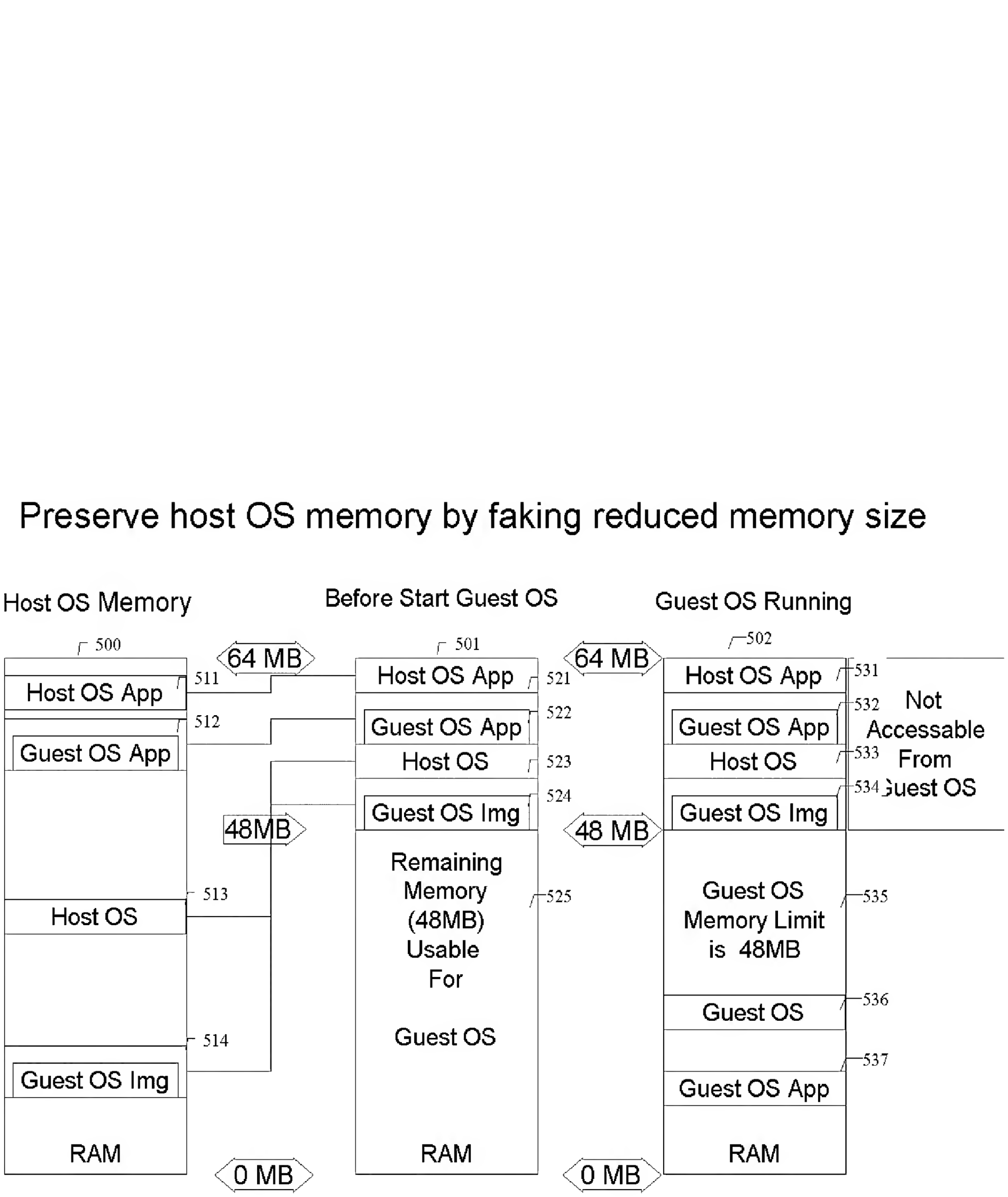
Preserve host OS memory by faking reduced memory size
Host OS Memory
Before Start Guest OS
Guest OS Running
500
501
502
64 MB
64 MB
48MB
48 MB
0 MB
0 MB
Host OS App
Guest OS App
Host OS
Guest OS Img
RAM
511
512
513
514
521
522
523
524
525
531
532
533
534
535
536
537
Remaining Memory (48MB) Usable For Guest OS
Not Accessable From Guest OS
Guest OS Memory Limit is 48MB
Guest OS
Guest OS App

Fig. 5

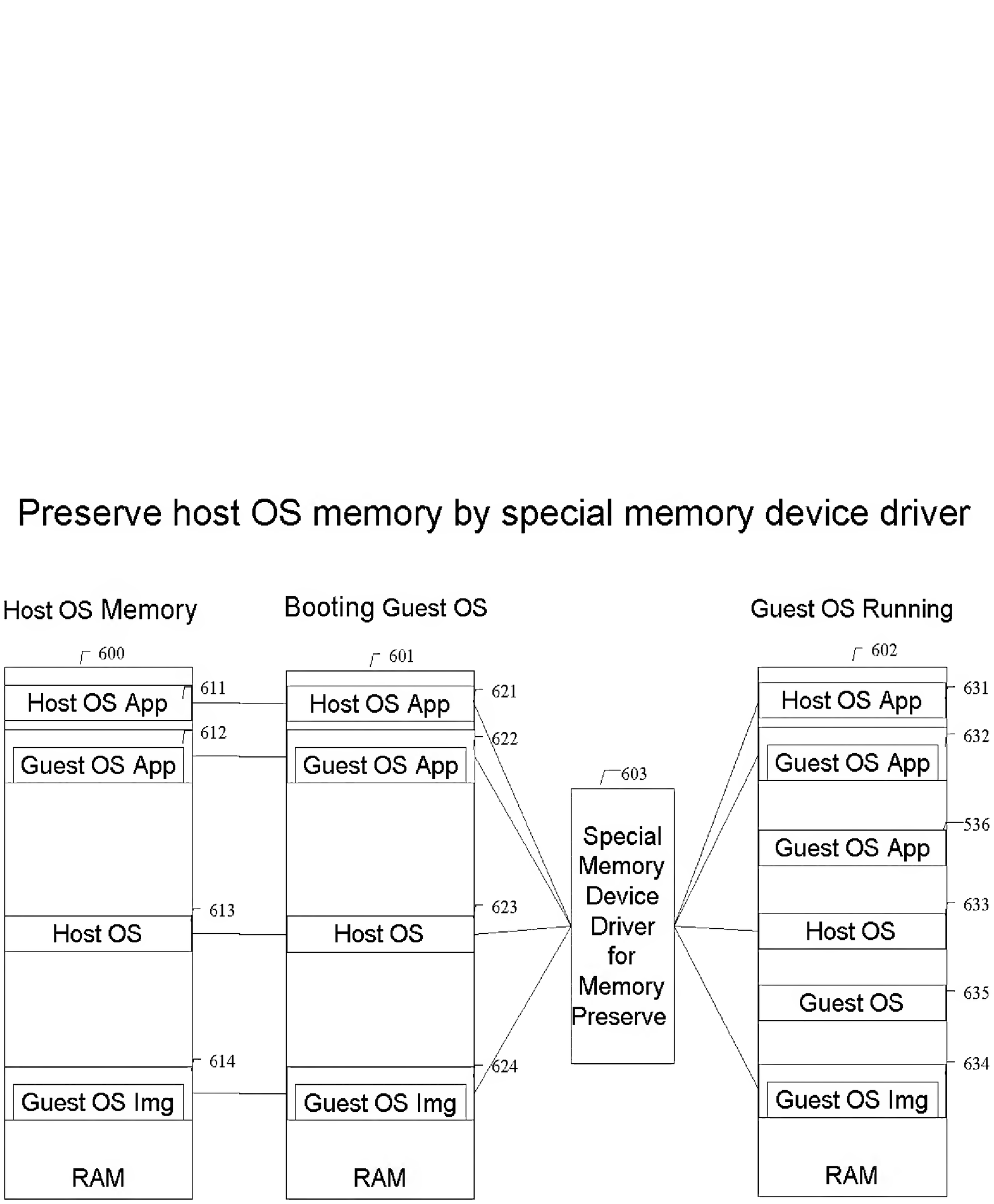
Preserve host OS memory by special memory device driver
Host OS Memory
Booting Guest OS
Guest OS Running
600
601
602
Host OS App
611
Guest OS App
612
Host OS
613
Guest OS Img
614
RAM
Host OS App
621
Guest OS App
622
Host OS
623
Guest OS Img
624
RAM
603
Special Memory Device Driver for Memory Preserve
Host OS App
631
Guest OS App
632
Guest OS App
536
Host OS
633
Guest OS
635
Guest OS Img
634
RAM

Fig. 6

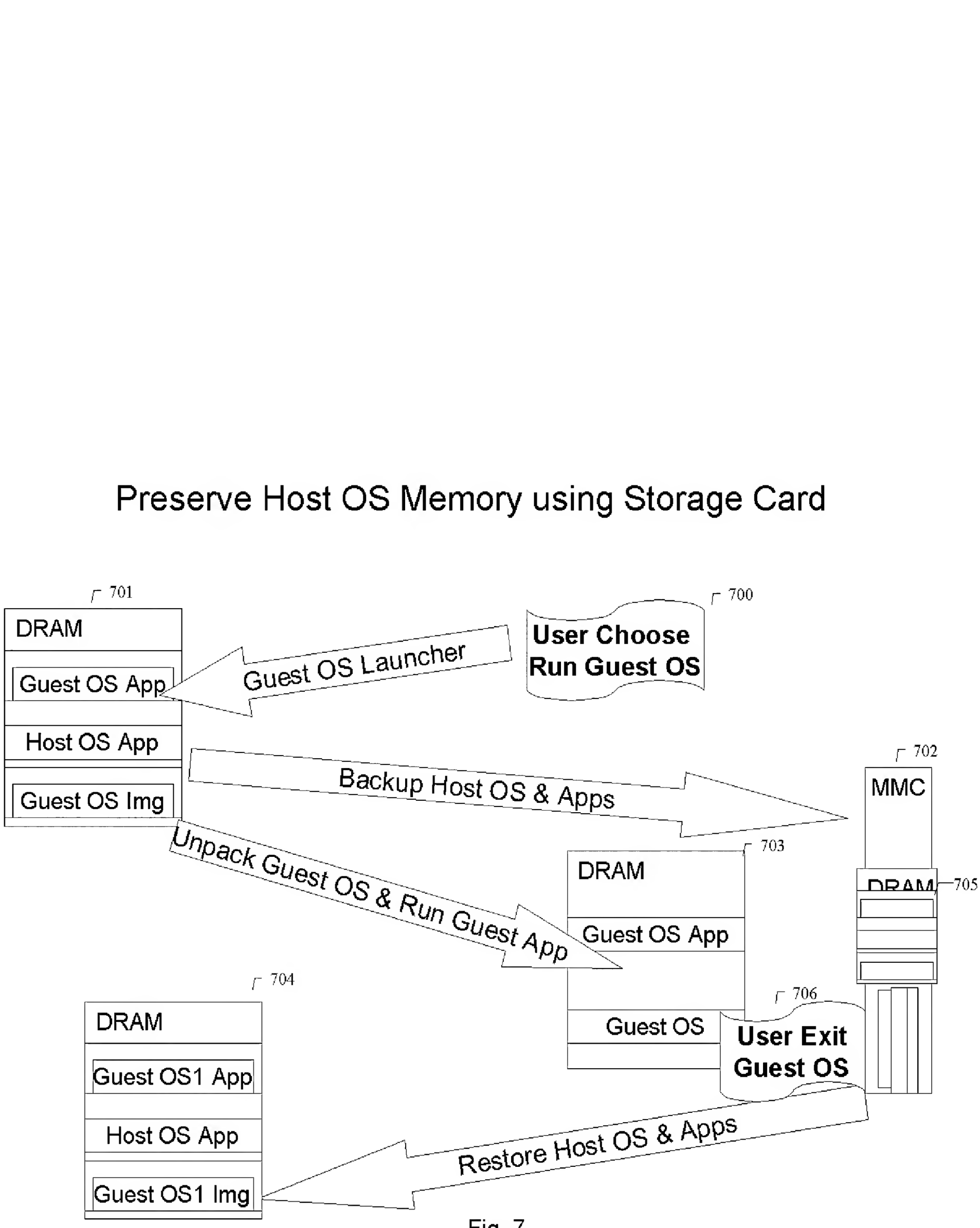
Preserve Host OS Memory using Storage Card
701
DRAM
Guest OS App
Host OS App
Guest OS Img
Guest OS Launcher
700
User Choose
Run Guest OS
Backup Host OS & Apps
702
MMC
DRAM
705
Unpack Guest OS & Run Guest App
703
DRAM
Guest OS App
Guest OS
706
User Exit
Guest OS
704
DRAM
Guest OS1 App
Host OS App
Guest OS1 Img
Restore Host OS & Apps

Fig. 7